

REMARKS/ARGUMENTS

Claims 1-37 are pending in this application. By this Amendment, the specification and claims 1-3, 7, 10-11, 14, 16, 19, 22, and 25-37 are amended. Support for the claims can be found throughout the specification, including the original claims, and the drawings. Withdrawal of the rejections in view of the above amendments and the following remarks is respectfully requested.

Entry of the amended claims is proper under 37 C.F.R. §1.116 since the amendments: (1) place the application in condition for allowance for the reasons discussed herein; (2) do not raise any new issues requiring further search and/or consideration since the amendments amplify issues previously discussed throughout prosecution without incorporating additional subject matter; (3) satisfy a requirement of form asserted in the previous Office Action; and/or (4) place the application in better form for appeal, if necessary. Entry is thus requested.

I. Allowable Subject Matter

The Examiner is thanked for the indication that claims 36-37 are allowed, and that claims 26-29 would be allowable if rewritten in independent form, including all of the limitations of the base claim and any intervening claims. However, for the reasons set forth below, claims 26-29 have not been rewritten in independent form at this time.

II. Informalities

A. The Claims

The Office Action objects to the claims, indicating that a single spelling for the term “conveyer” should be used throughout the claims for consistency. The amendments to claims 1-2, 10-11, 22, and 25-37 are responsive to the Examiner’s comments, and thus the objection should be withdrawn.

The Office Action objects to claims 3, 7, 14, and 16 due to an informality. The amendments to claims 3, 7, 14, and 16 are responsive to the Examiner’s comments, and thus the objection should be withdrawn.

B. The Specification

The Office Action objects to an amendment to the specification (page 12, lines 12-14) filed June 29, 2004, alleging this amendment introduces new matter. The Office Action further objects to an amendment to the specification (page 6, line 11 of the June 29, 2004 Amendment) due to an informality. The amendments to the specification filed herewith are responsive to the Examiner’s comments, and thus the objections to the specification should be withdrawn.

C. The Drawings

The Office Action objects to the drawings under 37 CFR 1.83(a), alleging the drawings fail to show a) a plurality of transfers being moved in the X and Y axis directions by an X-Y gantry installed on a base frame (page 7, lines 1-4 of the specification), and b) conveyer width adjusting rollers for guiding the conveyer guide frames when adjusting the width of the conveyer guide frames according to the width of the printed circuit board (page 12, lines 13-19 of the specification). The objection is respectfully traversed.

In the Amendment filed June 29, 2004, the specification was amended to recite a plurality of transfers that move in the x and y axis directions of an x-y gantry. The specification further discloses that the construction of the x-y gantry 12 shown in Figures 3, 5, 7 and 8a-8c are identical to those discussed with respect to Figure 2 (see page 8, lines 3-8 of the specification, and page 1 line 26 – page 2, line 2 of the specification for a discussion of the construction and operation of the x and y gantries 2 and 3 of Figure 2). Accordingly, it is respectfully submitted that the structural detail of the x-y gantry shown in the drawings, especially when taken in light of the specification by one of ordinary skill in the art, is sufficient to provide a proper understanding of the invention.

Further, with respect to the width adjusting rollers, 37 CFR 1.83(a) states:

“[c]onventional features disclosed in the description and claims, where their detailed illustration is not essential for a proper understanding of the invention, should be illustrated in the drawing in the form of a graphical drawing symbol or a labeled representation.”

It is respectfully submitted that these devices (as described in the specification at page 12, lines 15-19), are well known to those of ordinary skill in the art, and that the structural detail of the rollers 31a and 41a shown in Figures 4 and 6, especially when taken in light of the specification by one of ordinary skill in the art, is sufficient to provide a proper understanding of the invention.

For at least these reasons, it is respectfully submitted that the drawings meet the requirements of 37 CFR 1.83(a), and thus the objection should be withdrawn.

III. Rejection Under 35 U.S.C. §102(e)

The Office Action rejects claims 1-25 and 30-35 under 35 U.S.C. §102(e) as being anticipated by Freeman et al. (hereinafter “Freeman”), U.S. Patent No. 6,572,702. The rejection is respectfully traversed.

A. Claims 1-9 and 30-31

Independent claim 1 recites a plurality of transfers each configured to receive and to transport printed circuit boards, and a plurality of conveyers configured to receive the printed circuit boards from the plurality of transfers, to transport the printed circuit boards to a parts mounting work position within the device, to discharge the printed circuit boards to another of the plurality of conveyers for transport to another parts mounting work position within the device, and to discharge the printed circuit boards to the plurality of transfers when a parts mounting operation is complete. Freeman neither discloses nor suggests such features.

Freeman discloses three embodiments of an electronic assembly system for use in parallel production lines. In each of these embodiments, Freeman discloses an infeed conveyer which loads printed circuit boards (PCBs) into the system, and an outfeed conveyer which discharges PCBs from the system. The infeed and outfeed conveyers disclosed in each of Freeman’s embodiments correspond to the claimed plurality of transfers. Freeman further discloses front and rear conveyers which can position PCBs at particular work positions in the system. The front and rear conveyers correspond to the claimed plurality of conveyers.

In Figures 6a-6d, Freeman discloses a first conveyer system 402 for conveying a first PCB

420 into a first dispensing machine 400, while allowing a second PCB to pass straight through the first dispensing machine 400 to a second dispensing machine (not shown) positioned at a downstream point in the production line. This embodiment includes infeed and outfeed conveyers 410 and 416 (which can be compared to the claimed plurality of transfers), and front and back central conveyers 412 and 414 (which can be compared to the claimed plurality of conveyers). The front central conveyor 412 moves in line with the infeed conveyor 410 to receive the first PCB 420, as shown in Figure 6b. The front central conveyor 412 is then moved to a work position as shown in Figure 6c, and the back central conveyor 414 is moved in line with the infeed and outfeed conveyers 410 and 416, respectively, to allow a second PCB (not shown) to pass directly through the conveyor system 402 to a second dispensing machine (not shown) located downstream (see column 8, lines 46-54 of Freeman).

In this first embodiment, the front and back central conveyers 412 and 414 are clearly limited in their ability to move, and to exchange a PCB, within the conveyor system 402. That is, the central conveyor 412 begins at an initial position aligned with the infeed conveyor 410, and can only receive a PCB from the infeed conveyor 412, transport that PCB to a single work location within the conveyor system 402, and then, upon realigning with the outfeed conveyor 416, can only discharge that PCB to the outfeed conveyor 416. The front central conveyor cannot receive a PCB from or discharge a PCB to the back central conveyor 414.

Likewise, the back central conveyor 414 is limited to movement between a standby position and a position aligned with the infeed and outfeed conveyers 410 and 416, and is

limited to receiving a PCB from the infeed conveyer 410 and discharging the PCB to the outfeed conveyer 416. The back central conveyer 414 cannot transport a PCB to a work position, nor can it receive or discharge a PCB to the front central conveyer 412.

Thus, the embodiment disclosed by Freeman in Figures 6a-6d neither discloses nor suggests at least a plurality of conveyers which are configured to discharge printed circuit boards to another of the plurality of conveyers for transport to another parts mounting work position within the device, as recited in independent claim 1.

Freeman discloses a second embodiment in Figures 7a-7h, including two separate dispensing machines 500a and 500b disposed in series and coupled by two separate conveyer systems 502a and 502b. Except for the fact that the two dispensing machines 500a and 500b are sequentially aligned, they operate in a manner as described with respect to the dispensing machine 400 shown in Figures 6a-6d. That is, a front central conveyer 512a of the first dispensing machine 500a receives a first PCB 520 from the infeed conveyer 510 and transports it to a work position within the first dispensing machine 500a (Figure 7c). A back central conveyer 514a then aligns with the infeed conveyer 510 of the first dispensing machine 500a, and a second PCB 522 is transported straight through the first dispensing machine 500a onto a front central conveyer 512b of the second dispensing machine 500b (Figure 7d).

Although Freeman discloses multiple conveyers in this embodiment, the conveyers suffer deficiencies similar to those discussed with respect to Freeman's first embodiment. That is, the front central conveyer 512a of the first dispensing machine 500a is limited to transporting the

PCB 520 to a single work position within the first dispensing machine 500a, and the back central conveyer 514a is limited to passing a PCB straight through the first dispensing machine 500a. Likewise, the front central conveyer 512b of the second dispensing machine is limited to transporting the PCB 522 to a single work position within the second dispensing machine 500b, and the back central conveyer 514b is limited to passing a PCB straight through the second dispensing machine 500b.

Thus, the embodiment disclosed by Freeman in Figures 7a-7h neither discloses nor suggests at least a plurality of conveyers which are configured to discharge printed circuit boards to another of the plurality of conveyers for transport to another parts mounting work position within the device, as recited in independent claim 1.

Freeman discloses a third conveyer system 702 with a dual zone dispensing system in Figures 8a-8g, including an infeed and an outfeed conveyer 710 and 716, respectively, which would correspond to the claimed plurality of transfers, and a front and a back central conveyer 712 and 714, respectively, which would correspond to the claimed plurality of conveyers. This conveyer system 702 operates in a similar fashion to the conveyer system 402 shown in Figures 6a-6d of Freeman, except that the front and back central conveyers 712 and 714 may be moved independently to dispensing locations 704 and 706, respectively.

Although this embodiment discloses multiple work stations 704 and 706 within a single dispensing system 702, a PCB still cannot be passed directly from one conveyer to another

within a single machine. For example, a PCB cannot be transported to work position 704 by the front central conveyer 712, and then passed from the front central conveyer 712 to the back central conveyer 714 upon completion of a parts mounting operation. Rather, movement of the conveyers 712 and 714, and the PCBs carried thereon, is limited as discussed with respect to the first and second embodiments.

Thus, the embodiment disclosed by Freeman in Figures 8a-8g neither discloses nor suggests at least a plurality of conveyers which are configured to discharge printed circuit boards to another of the plurality of conveyers for transport to another parts mounting work position within the device, as recited in independent claim 1.

Accordingly, it is respectfully submitted that independent claim 1 is not anticipated by Freeman, and thus the rejection of independent claim 1 under 35 U.S.C. §102(e) over Freeman should be withdrawn. Dependent claims 2-9 and 30-31 are allowable at least for the reasons discussed above with respect to independent claim 1, from which they depend, as well as for their added features.

B. Claims 10-21 and 32-34

Independent claim 10 recites, *inter alia*, a plurality of conveyers configured to, *inter alia*, discharge the printed circuit boards to another conveyer of the plurality of conveyers for transport to another parts mounting work position within the device. As set for the above, Freeman neither discloses nor suggests such features.

Accordingly, it is respectfully submitted that independent claim 10 is not anticipated by Freeman, and thus the rejection of independent claim 10 under 35 U.S.C. §102(e) over Freeman should be withdrawn. Dependent claims 11-21 and 32-34 are allowable at least for the reasons discussed above with respect to independent claim 10, from which they depend, as well as for their added features.

C. Claims 22-24 and 35

Independent claim 22 recites, *inter alia*, transferring the first printed circuit board from the first conveyer to a second conveyer of said device under control of the controller. Independent claim 22 further recites, *inter alia*, carrying the second printed circuit board carried by the first conveyer to the second conveyer when the parts mounting operation on the first printed circuit board is complete. As set forth above, Freeman neither discloses nor suggests such features. More specifically, Freeman neither discloses nor suggests transferring of printed circuit boards amongst a plurality of conveyers within the device, as recited in independent claim 22.

Accordingly, it is respectfully submitted that independent claim 22 is not anticipated by Freeman, and thus the rejection of independent claim 22 under 35 U.S.C. §102(e) over Freeman should be withdrawn. Dependent claims 23-24 and 35 are allowable at least for the reasons discussed above with respect to independent claim 22, from which they depend, as well as for their added features.

D. Claims 25-29

Independent claim 25 recites, *inter alia*, discharging the printed circuit boards from the

first conveyer to the second conveyer or to a second plane motion transfer, or from the second conveyer to the first conveyer or to the second plane motion transfer, wherein the second plane motion transfer is configured to move in plane motion so as to align with the first conveyer and the second conveyer when a parts mounting operation is complete. As set forth above, Freeman neither discloses nor suggests such features.

Accordingly, it is respectfully submitted that independent claim 25 is not anticipated by Freeman, and thus the rejection of independent claim 25 under 35 U.S.C. §102(e) over Freeman should be withdrawn. Objected to dependent claims 26-29 are allowable at least for the reasons discussed above with respect to independent claim 25, from which they depend, as well as for their added features.

IV. Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney, **John C. Eisenhart**, at the telephone number listed below. Favorable consideration and prompt allowance are earnestly solicited.

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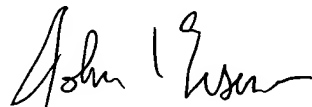
Docket No. MRE-0041

Amendment dated February 4, 2005

Reply to Office Action of November 16, 2004

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
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